Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A sports simulation system comprising:

a projectile tracking apparatus comprising a display surface on which a visually apparent three-dimensional sports scene is presented, said projectile tracking apparatus capturing and processing images of a projectile tracking region disposed in front of said display surface to detect a launched sports projectile generally continuously from its launch position, throughout its travel through said projectile tracking region and to its contact position with said display surface; and

at least one processing stage receiving [the] image data from said projectile tracking apparatus and determining the three-dimensional positions, velocity and deceleration/acceleration of [a] the detected launched sports projectile traveling through said projectile tracking region, the three-dimensional positions, velocity and deceleration/acceleration being used by said at least one processing stage to calculate a trajectory of said launched sports projectile into said visually apparent three-dimensional sports scene, wherein said at least one processing stage uses said calculated trajectory to generate updated image data representing a simulation of the flight path of said launched sports projectile beginning substantially at the display surface contact position and traveling into said visually apparent three-dimensional sports scene following said calculated trajectory so that said simulation represents a realistic continuance of the travel of said sports projectile beyond the display surface.

2. (Cancelled).

3. (Previously Presented) A sports simulation system according to claim 1 further comprising a display device coupled to said at least one processing stage, said display device receiving image data from said at least one processing stage and presenting said visually apparent three-dimensional sports scene including said simulation on said display surface.

4. (Original) A sports simulation system according to claim 3 wherein said visually apparent three-dimensional scene includes at least one foreground action element overlying and moveable over a background image, said at least one processing stage updating said image data so that said at least one foreground action element responds to the simulation of said launched projectile.

5. (Original) A sports simulation system according to claim 3 wherein said projectile tracking apparatus includes a frame and at least one pair of imaging devices mounted on said frame, said imaging devices having overlapping fields of view looking across and in front of said display surface and capturing images of said projectile tracking region.

6. (Original) A sports simulation system according to claim 5 wherein said imaging devices have generally perpendicular fields of view looking across and in front of said display surface from adjacent opposite corners of said frame.

7. (Original) A sports simulation system according to claim 6 wherein said frame encompasses a rectangular region and wherein said projectile tracking apparatus includes four imaging devices, each having a field of view looking across and in front of said display surface from a different corner of said rectangular region, said fields of view overlapping in a generally perpendicular manner.

8. (Original) A sports simulation system according to claim 7 wherein said visually apparent three-dimensional scene includes at least one foreground action element overlying and moveable

over a background image, said at least one processing stage updating said image data so that said
at least one foreground action element responds to the simulation of said launched projectile.

9. (Original) A sports simulation system according to claim 6 wherein each of said imaging
devices includes a first processor constituting one processing stage, each said first processor
generating two-dimensional projectile position data as said projectile travels through said
projectile tracking region, said two-dimensional projectile position data being conveyed to a host
processor constituting a second processing stage, said host processor using the two-dimensional
projectile position data received from each first processor to generate three-dimensional
projectile position data and to calculate the velocity and deceleration/acceleration of said
projectile.

10. (Original) A sports simulation system according to claim 9 wherein each said first processor
examines captured images to detect pixel clusters resembling a characteristic projectile signature
thereby to detect said projectile in said captured images.

11. (Original) A sports simulation system according to claim 9 further including an audio system
to broadcast audio accompanying said visually apparent three-dimensional sports scene and
simulation.

12. (Original) A sports simulation system according to claim 3 wherein said at least one
processing stage executes sports simulation software including at least two of a training mode, a
practice mode and a game play mode, the visually apparent three-dimensional sports scene being
consistent with the selected mode.

13. (Original) A sports simulation system according to claim 12 wherein said sports simulation
software includes a plurality of selectable sports modules each relating to a different sport that

can be simulated, each sports module including at least two of a training mode, a practice mode and a game play mode.

14. (Original) A sports simulation system according to claim 13 wherein said sports modules include a football module, a soccer module, a hockey module, a baseball module and a golf module.

15. (Original) A sports simulation system according to claim 10 wherein said host processor executes sports simulation software including at least two of a training mode, a practice mode and a game play mode, the visually apparent three-dimensional sports scene being consistent with the selected mode.

16. (Original) A sports simulation system according to claim 15 wherein said sports simulation software includes a plurality of selectable sports modules each relating to a different sport that can be simulated, each sports module including at least two of a training mode, a practice mode and a game play mode.

17. (Original) A sports simulation system according to claim 16 wherein said sports modules include a football module, a soccer module, a hockey module, a baseball module and a golf module.

18. (Original) A sports simulation system according to claim 17 further including an audio system to broadcast audio accompanying said visually apparent three-dimensional sports scene and simulation.

19. (Original) A sports simulation system according to claim 4 wherein said visually apparent three-dimensional sports scene includes a plurality of foreground action elements independently moveable over said background image.

20. (Original) A sports simulation system according to claim 4 wherein said at least one foreground action element, background image and launched projectile simulation are non-destructive overlay image planes that are combined seamlessly to complete said visually apparent three-dimensional sports scene.

21. (Original) A sports simulation system according to claim 19 wherein said foreground action elements, background image and launched projectile simulation are non-destructive overlay image planes that are combined seamlessly to complete said visually apparent three-dimensional sports scene.

22. (Currently Amended) A sports simulation system comprising:

      a projectile tracking apparatus for tracking a launched sports projectile, said apparatus comprising: a frame encompassing a display surface on which a video sequence portraying a visually apparent three-dimensional sports scene is presented; at least one pair of digital cameras mounted on said frame and having fields of view looking across and in front of said display surface that overlap in a generally perpendicular fashion and encompassing a projectile tracking region <u>extending generally between said display surface and a projectile launch area</u>, each of said digital cameras including a first processor for processing image data and generating two-dimensional projectile coordinates <u>generally continuously</u> as the launched sports projectile travels generally from its launch point, through said projectile tracking region to its contact point with said display surface; and an audio system to broadcast audio accompanying said video sequence;

      a host processor communicating with said digital cameras and said audio system, said host processor processing the two-dimensional projectile coordinates received from each first processor to determine the velocity and acceleration/deceleration of said projectile and using the determined projectile velocity and acceleration/deceleration to calculate a realistic three-dimensional trajectory of said sports projectile and outputting image data representing said calculated three-dimensional trajectory; and

a display unit receiving said image data and presenting said video sequence on said display surface, said video sequence representing a simulation of the flight path of said sports projectile following said calculated trajectory beginning from the contact point of said sports projectile with said display surface so that said simulation represents a realistic continuance of the travel of said sports projectile beyond the display surface.

23. (Original) A sports simulation system according to claim 22 wherein said visually apparent three-dimensional scene includes at least one foreground action element overlying and moveable over a background image, said host processor updating said image data so that said at least one foreground action element responds to the calculated trajectory of said projectile.

24. (Original) A sports simulation system according to claim 23 wherein said frame is readily assembled and disassembled

25. (Original) A sports simulation system according to claim 23 wherein said host processor executes sports simulation software including at least two of a training mode, a practice mode and a game play mode, the visually apparent three-dimensional sports scene being consistent with the selected mode.

26. (Original) A sports simulation system according to claim 25 wherein said sports simulation software includes a plurality of selectable sports modules each relating to a different sport that can be simulated, each sport module including at least two of a training mode, a practice mode and a game play mode.

27. (Original) A sports simulation system according to claim 26 wherein said sports modules include a football module, a soccer module, a hockey module, a baseball module and a golf module.

28. (Original) A sports simulation system according to claim 22 wherein each said first processor examines captured images to detect pixel clusters resembling a characteristic projectile signature thereby to detect said projectile in said captured images.

29. (Original) A sports simulation system according to claim 28 wherein said frame encompasses a rectangular region and wherein said projectile tracking apparatus includes four imaging devices, each having a field of view looking across and in front of said display surface from a different corner of said rectangular region, said fields of view overlapping in a generally perpendicular manner.

30. (Original) A sports simulation system according to claim 23 wherein said visually apparent three-dimensional sports scene includes a plurality of foreground action elements independently moveable over said background image.

31. (Original) A sports simulation system according to claim 23 wherein said at least one foreground action element, background image and launched projectile simulation are non-destructive overlay image planes that are combined seamlessly to complete said visually apparent three-dimensional sports scene.

32. (Original) A sports simulation system according to claim 30 wherein said foreground action elements, background image and launched projectile simulation are non-destructive overlay image planes that are combined seamlessly to complete said visually apparent three-dimensional sports scene.

33. (Original) A sports simulation system according to claim 23 wherein each said first processor examines captured images to detect pixel clusters resembling a characteristic projectile signature thereby to detect said projectile in said captured images.

34. (Original) A sports simulation system according to claim 33 wherein said visually apparent three-dimensional sports scene includes a plurality of foreground action elements independently moveable over said background image.

35. (Original) A sports simulation system according to claim 34 wherein said foreground action elements, background image and launched projectile simulation are non-destructive overlay image planes that are combined seamlessly to complete said visually apparent three-dimensional sports scene.

36. (Currently Amended) A projectile tracking apparatus for a sports simulation system comprising:

    a frame encompassing a display surface on which a video sequence portraying a visually apparent three-dimensional sports scene is presented;

    at least one pair of digital cameras mounted on said frame and having fields of view looking across and in front of said display surface that overlap in a generally perpendicular fashion and encompassing a projectile tracking region extending between said display surface and a projectile launch area, each of said digital cameras including a processor for processing image data and generating two-dimensional projectile coordinates generally continuously a launched at least when a sports projectile is launched from said launch area, travels generally from its launch point, through said projectile tracking region to its contact point with the display surface;

    a host processor communicating with said digital cameras, said host processor processing the two-dimensional projectile coordinates received from the digital camera processors to determine the velocity and acceleration/deceleration of said sports projectile and using the determined projectile velocity and acceleration/deceleration to calculate a three-dimensional trajectory of said sports projectile and modifying the video sequence so that the video sequence shows the sports projectile traveling into the sports scene beginning from its contact point with the display surface following said calculated three-dimensional trajectory so

that said video sequence represents a realistic continuance of the travel of said sports projectile beyond the display surface; and

> an audio system to broadcast audio accompanying said video sequence.

37. (Original) A projectile tracking apparatus according to claim 36 wherein each said processor stores a projectile characteristic signature that is compared with captured images to detect the presence of a projectile therein.

38. (Original) A projectile tracking apparatus according to claim 37 wherein said frame encompasses a rectangular region and wherein said projectile tracking apparatus includes four imaging devices, each having a field of view looking across and in front of said display surface from a different corner of said rectangular region, said fields of view overlapping in a generally perpendicular manner.

39. (Original) A projectile tracking apparatus according to claim 38 further comprising a mirror associated with each digital camera to direct the field of view thereof across and in front of said display surface.

40. (New)   A golf simulator comprising:

> a display surface on which a golf scene is presented;

> imaging devices capturing images of a region in front of said display surface; and

> processing structure receiving image data from said imaging devices and

processing said image data to detect a launched golf ball generally continuously from its launch position, throughout its travel through said region and to its contact position with said display surface, said processing structure further processing said image data to determine the three-dimensional positions, velocity and deceleration/acceleration of the detected launched golf ball traveling through said region, the three-dimensional positions, velocity and deceleration/acceleration being used by said processing structure to calculate a trajectory of said launched golf ball into said golf scene, wherein said processing structure uses said calculated

trajectory to generate updated image data representing a simulation of the flight path of said launched golf ball beginning substantially at the display surface contact position and traveling into said golf scene following said calculated trajectory so that said simulation represents a realistic continuance of the travel of said golf ball beyond the display surface.

41. (New) A golf simulator according to claim 40 further comprising a display device coupled to said processing structure, said display device receiving image data from said processing structure and presenting said golf scene including said simulation on said display surface.

42. (New) A golf simulator according to claim 41 wherein said golf scene includes at least one foreground action element overlying and moveable over a background image, said processing structure updating said image data so that said at least one foreground action element responds to the simulation of said launched golf ball.

43. (New) A golf simulator according to claim 41 comprising at least one pair of imaging devices, said imaging devices having overlapping fields of view looking across and in front of said display surface and capturing images of said region.

44. (New) A golf simulator according to claim 43 wherein said imaging devices have generally perpendicular fields of view looking across and in front of said display surface.

45. (New) A golf simulator according to claim 43 wherein said golf scene includes at least one foreground action element overlying and moveable over a background image, said processing structure updating said image data so that said at least one foreground action element responds to the simulation of said launched golf ball.

46. (New) A golf simulator according to claim 43 wherein said processing structure processes said image data to detect pixel clusters resembling a characteristic signature thereby to detect said golf ball in said captured images.

47. (New) A golf simulator according to claim 43 further comprising an audio system to broadcast audio.

48. (New) A golf simulator according to claim 42 wherein said golf scene includes a plurality of foreground action elements independently moveable over said background image.

49. (New) A golf simulator according to claim 42 wherein said at least one foreground action element, background image and launched golf ball simulation are non-destructive overlay image planes that are combined seamlessly to complete said golf scene.

50. (New) A golf simulator according to claim 48 wherein said foreground action elements, background image and launched golf ball simulation are non-destructive overlay image planes that are combined seamlessly to complete said golf scene.